

Board Administration and Regulatory Coordination Unit

Division 3. Air Resources Board

Chapter 1. Motor Vehicle Pollution Control Devices

Article 2. Approval of Motor Vehicle Pollution Control Devices (New Vehicles)

§ 1976. Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions.

(a) Fuel evaporative emissions from 1970 through 1977 model passenger cars and light-duty trucks are set forth in Title 40, Code of Federal Regulations, Part 86, Subparts A and C, as it existed on June 20, 1973. These standards are enforced in California pursuant to section 43008 of the Health and Safety Code.

(b)(1) Evaporative emissions for 1978 and subsequent model gasoline-fueled, 1983 and subsequent model liquified petroleum gas-fueled, and 1993 and subsequent model alcohol-fueled motor vehicles and hybrid electric vehicles subject to exhaust emission standards under this article, except petroleum-fueled diesel vehicles, compressed natural gas-fueled vehicles, hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions, and motorcycles, shall not exceed the following standards.

(A) For vehicles identified below, tested in accordance with the test procedure based on the Sealed Housing for Evaporative Determination as set forth in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989, the evaporative emission standards are:

<i>Vehicle Type</i>	<i>Model Year</i>	<i>Hydrocarbons¹</i>
		<i>Diurnal + Hot Soak (grams/test) 50K miles</i>
Passenger cars	1978 and 1979	6.0
Light-duty trucks		6.0
Medium-duty vehicles		6.0
Heavy-duty vehicles		6.0
Passenger cars	1980-1994 ²	2.0
Light-duty trucks		2.0
Medium-duty vehicles		2.0
Heavy-duty vehicles		2.0

¹ Organic Material Hydrocarbon Equivalent, for alcohol-fueled vehicles.

² Other than hybrid electric vehicles.

(B) For the vehicles identified below, tested in accordance with the test procedure which includes the running loss test, the hot soak test, and the 72 hour diurnal test, the evaporative emission standards are:

<i>Vehicle Type</i>	<i>Model Year</i>	<i>Hydrocarbons¹</i>	<i>Running Loss</i>
		<i>Three - Day Diurnal + Hot Soak (grams/test) Useful Life²</i>	<i>(grams/test) Useful Life²</i>
Passenger cars	1995 through 2005 ³	2.0	0.05
Light-duty trucks		2.0	0.05
Medium-duty vehicles (6,001-8,500 lbs. GVWR)			
with fuel tanks < 30 gallons		2.0	0.05
with fuel tanks > 30 gallons		2.5	0.05
(8,501-14,000 lbs. GVWR) ⁴		3.0	0.05
Heavy-duty vehicles (over 14,000 lbs. GVWR)		2.0	0.05
Hybrid electric passenger cars	1993 through 2005 ⁵	2.0	0.05
Hybrid electric light-duty trucks		2.0	0.05
Hybrid electric medium-duty vehicles		2.0	0.05

¹ Organic Material Hydrocarbon Equivalent, for alcohol-fueled vehicles.

² For purposes of this paragraph, "useful life" shall have the same meaning as provided in section 2112, Title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1 or 1961, Title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.

³ The running loss and useful life three-day diurnal plus hot soak evaporative emission standards (hereinafter "running loss and useful life standards") shall be phased in beginning with the 1995 model year. Each manufacturer,

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except ultra-small volume and small volume manufacturers, shall certify the specified percent (a) of passenger cars and (b) of light-duty trucks, medium-duty vehicles and heavy-duty vehicles to the running loss and useful life standards according to the following schedule:

<i>Model Year</i>	<i>Minimum Percentage of Vehicles Certified to Running Loss and useful Life Standards*</i>
1995	10 percent
1996	30 percent
1997	50 percent

*The minimum percentage of motor vehicles of each vehicle type required to be certified to the running loss and useful life standards shall be based on the manufacturer's projected California model-year sales (a) of passenger cars and (b) of light-duty trucks, medium-duty vehicles and heavy-duty vehicles. Optionally, the percentage of motor vehicles can also be based on the manufacturer's projected California model-year sales (a) of passenger cars and light-duty trucks and (b) of medium-duty vehicles and heavy-duty vehicles.

Beginning with the 1998 model year, all motor vehicles subject to the running loss and useful life standards, except those produced by ultra-small volume manufacturers, shall be certified to the specified standards. In the 1999 through 2005 model years, all motor vehicles subject to the running loss and useful life standards, including those produced by ultra-small volume manufacturers, shall be certified to the specified standards.

All 1995 through 1998 model-year motor vehicles which are not subject to running loss and useful life standards pursuant to the phase-in schedule shall comply with the 50,000-mile standards in effect for 1980 through 1994 model-year vehicles.

⁴ For the 1995 model year only, the evaporative emission standards for complete vehicles in this weight range shall be 2.0 grams/test and compliance with the evaporative emission standards shall be based on the SHED conducted in accordance with the procedures set forth in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989. For the 1995 through 2005 model years, the evaporative emission standards for incomplete vehicles in this weight range shall be 2.0 grams/test and compliance with the evaporative emission standards shall be based on the test procedures specified in paragraph 4.g. of the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles."

⁵ The running loss and useful life standards for all hybrid electric vehicles shall be effective beginning in the 1993 model year.

(C) For vehicles identified below, tested in accordance with the test procedure which includes the hot soak test and the 48 hour diurnal test, the evaporative emission standards are:

<i>Vehicle Type</i>	<i>Model Year</i>	<i>Hydrocarbons¹ Two-Day Diurnal + Hot Soak (grams/test) Useful Life²</i>
Passenger cars	1996 through 2005 ³	2.5
Light-duty trucks		2.5
Medium-duty vehicles (6,001-8,500 lbs. GVWR)		
with fuel tanks < 30 gallons		2.5
with fuel tanks ≥ 30 gallons		3.0
(8,501-14,000 lbs. GVWR)		3.5
Heavy-duty vehicles (over 14,000 lbs. GVWR)		4.5
Hybrid electric passenger cars	1996 through 2005 ³	2.5
Hybrid electric light-duty trucks		2.5
Hybrid electric medium-duty vehicles		2.5

¹ Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.

² For purposes of this paragraph, "useful life" shall have the same meaning as provided in section 2112, Title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1 or 1961, Title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.

³ The two-day diurnal plus hot soak evaporative emission standards (hereinafter "supplemental standards") shall be phased-in beginning with the 1996 model year. Those vehicles certified under the running loss and useful life standards for the 1996 through 2005 model years must also be certified under the supplemental standards.

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(D) Zero-emission vehicles shall produce zero fuel evaporative emissions under any and all possible operational modes and conditions.

(E) The optional zero-fuel evaporative emission standards for the three-day and two-day diurnal-plus-hot-soak tests are 0.35 grams per test for passenger cars, 0.50 grams per test for light-duty trucks 6,000 lbs. GVWR and under, and 0.75 grams per test for light-duty trucks from 6,001 to 8,500 lbs. GVWR, to account for vehicle non-fuel evaporative emissions (resulting from paints, upholstery, tires, and other vehicle sources). Vehicles demonstrating compliance with these evaporative emission standards shall also have zero (0.0) grams of fuel evaporative emissions per test for the three-day and two-day diurnal-plus-hot-soak tests. The “useful life” shall be 15 years or 150,000 miles, whichever occurs first. In lieu of demonstrating compliance with the zero (0.0) grams of fuel evaporative emissions per test over the three-day and two-day diurnal-plus-hot-soak tests, the manufacturer may submit for advance Executive Officer approval a test plan to demonstrate that the vehicle has zero (0.0) grams of fuel evaporative emissions throughout its useful life.

Additionally, in the case of a SULEV vehicle for which a manufacturer is seeking a partial ZEV credit, the manufacturer may prior to certification elect to have measured fuel evaporative emissions reduced by a specified value in all certification and in-use testing of the vehicle as long as measured mass exhaust emissions of NMOG for the vehicle are increased in all certification and in-use testing. The measured fuel evaporative emissions shall be reduced in increments of 0.1 gram per test, and the measured mass exhaust emissions of NMOG from the vehicle shall be increased by a gram per mile factor, to be determined by the Executive Officer, for every 0.1 gram per test by which the measured fuel evaporative emissions are reduced. For the purpose of this calculation, the evaporative emissions shall be measured, in grams per test, to a minimum of three significant figures.

(F) For the 2004 and subsequent model motor vehicles identified below, tested in accordance with the test procedures described in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989 and as modified by the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles” incorporated by reference in section 1976(c), the evaporative emission standards are:

Vehicle Type	Running Loss (grams per mile)	Hydrocarbon ¹ Standards ^{2 3 4}	
		Three Day Diurnal + Hot Soak (grams per test)	Two-Day Diurnal + Hot Soak (grams per test)
Passenger cars	0.05	0.50	0.65
Light-duty trucks (under 8,501 lbs. GVWR)			
6,000 lbs. GVWR and under	0.05	0.65	0.85
6,001 - 8,500 lbs. GVWR	0.05	0.90	1.15
Medium-duty vehicles (8,501 - 14,000 lbs. GVWR)	0.05	1.00	1.25
Heavy-duty vehicles (over 14,000 lbs. GVWR)	0.05	1.00	1.25

¹ Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.

² For all vehicles certified to these standards, the “useful life” shall be 15 years or 150,000 miles, whichever first occurs. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1 or 1961, title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.

³ (a) These evaporative emission standards shall be phased-in beginning with the 2004 model year. Each manufacturer, except small volume manufacturers, shall certify at a minimum the specified percentage of its vehicle fleet to the evaporative emission standards in this table or the optional zero-evaporative emission standards in section 1976(b)(1)(E) according to the schedule set forth below. For purposes of this paragraph (a), each manufacturer's vehicle fleet consists of the total projected California sales of the manufacturer's gasoline-fueled, liquefied petroleum-fueled and alcohol-fueled passenger cars, light-duty trucks, medium-duty vehicles, and heavy-duty vehicles.

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<i>Model Year</i>	<i>Minimum Percentage of Vehicles Certified to the Standards in §§1976(b)(1)(F) and (b)(1)(E)</i>
2004	40
2005	80
2006 and subsequent	100

A small volume manufacturer shall certify 100 percent of its 2006 and subsequent model vehicle fleet to the evaporative emission standards in the table or the optional zero-evaporative emission standards in section 1976(b)(1)(E).

All 2004 through 2005 model-year motor vehicles which are not subject to these standards or the standards in section 1976(b)(1)(E) pursuant to the phase-in schedule shall comply with the requirements of sections 1976(b)(1)(B) and (C).

(b) A manufacturer may use an "Alternative or Equivalent Phase-in Schedule" to comply with the phase-in requirements. An "Alternative Phase-in" is one that achieves at least equivalent emission reductions by the end of the last model year of the scheduled phase-in. Model-year emission reductions shall be calculated by multiplying the percent of vehicles (based on the manufacturer's projected California sales volume of the applicable vehicle fleet) meeting the new requirements per model year by the number of model years implemented prior to and including the last model year of the scheduled phase-in. The "cumulative total" is the summation of the model-year emission reductions (e.g., the three model-year 40/80/100 percent phase-in schedule would be calculated as: $(40\% \times 3 \text{ years}) + (80\% \times 2 \text{ years}) + (100\% \times 1 \text{ year}) = 380$). The required cumulative total for the phase-in of these standards is 380 emission reductions. Any alternative phase-in that results in an equal or larger cumulative total than the required cumulative total by the end of the last model year of the scheduled phase-in shall be considered acceptable by the Executive Officer only if all vehicles subject to the phase-in comply with the respective requirements in the last model year of the required phase-in schedule. A manufacturer shall be allowed to include vehicles introduced before the first model year of the scheduled phase-in (e.g., in the previous example, 10 percent introduced one year before the scheduled phase-in begins would be calculated as: $(10\% \times 4 \text{ years}) = 40$) and added to the cumulative total.

(c) These evaporative emission standards do not apply to zero-emission vehicles.

⁴In-use compliance whole vehicle testing shall not begin until the motor vehicle is at least one year from the production date and has accumulated a minimum of 10,000 miles. For vehicles introduced prior to the 2007 model year, in-use compliance standards of 1.75 times the "Three-Day Diurnal + Hot-Soak" and "Two-Day Diurnal + Hot-Soak" gram per test standards shall apply for only the first three model years of an evaporative family certified to a new standard.

(b)(2) Evaporative emissions for gasoline-fueled motorcycles subject to exhaust emission standards under this article shall not exceed:

<i>Motorcycle Class</i>	<i>Model Year</i>	<i>Hydrocarbons (grams per test)</i>
Class I and II (50-279cc)	1983 and 1984	6.0
	1985 and subsequent	2.0
Class III (280cc and larger)	1984 and 1985	6.0
	1986 and subsequent	2.0
Class III (280cc and larger) (Optional Standard for Small- Volume Motorcycle Manufacturers)	1986-1988	6.0

(c) The test procedures for determining compliance with the standards in subsection (b) above applicable to 1978 through 2000 model year vehicles are set forth in "California Evaporative Emission Standards and Test Procedures for 1978-2000 Model Motor Vehicles," adopted by the state board on April 16, 1975, as last amended August 5, 1999, which is incorporated herein by reference. The test procedures for determining compliance with standards applicable to 2001 and subsequent model year vehicles are set forth in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," adopted by the state board on August 5, 1999, which is incorporated herein by reference.

(d) Motorcycle engine families certified to 0.2 grams per test or more below the applicable standards shall be exempted from the state board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" pursuant to section 2235, Title 13, California Code of Regulations.

(e) Small volume motorcycle manufacturers electing to certify 1986, 1987, or 1988 model-year Class III motorcycles in accordance with the optional 6.0 grams per test evaporative emission standard shall submit, with the certification application, a list of the motorcycle models for which it intends to seek California certification and estimated sales data for such models. In addition, each such manufacturer shall, on or before July 1 of each year in

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which it certifies motorcycles under the optional standard, submit a report describing its efforts and progress toward meeting the more stringent evaporative emission standards. The report shall also contain a description of the manufacturer's current hydrocarbon evaporative emission control development status, along with supporting test data, and shall summarize future planned development work.

(f)(1) For purposes of this section, "small volume motorcycle manufacturer" means a manufacturer which sells less than 5,000 new motorcycles per year in California.

(2) For the purposes of this section, "ultra-small volume manufacturer" means any vehicle manufacturer with California sales less than or equal to 300 new vehicles per model year based on the average number of vehicles sold by the manufacturer in the previous three consecutive model years, and "small volume manufacturer" means, for 1978 through 2000 model years, any vehicle manufacturer with California sales less than or equal to 3000 new vehicles per model year based on the average number of vehicles sold by the manufacturer in the previous three consecutive model years. For 2001 and subsequent model motor vehicles, "small volume manufacturer" has the meaning set forth in section 1900(a).

NOTE: Authority cited: Sections 39600, 39601, 39667, 43013, 43018, 43101, 43104 and 43107, Health and Safety Code. Reference: Sections 39003, 39500, 39667, 43000, 43013, 43018, 43100, 43101, 43102, 43104 and 43107, Health and Safety Code.

REFERENCE